

Counting degrees of freedom in periodic frameworks

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A framework is a structure made of fixed-length bars, connected by joints with full rotational freedom. A framework is rigid if all its continuous deformations are rigid-body motions and otherwise flexible. Combinatorial rigidity is concerned with the question of predicting rigidity from just the graph that has as its edge the bars. In dimension 2, a result of Laman does this for “generic” geometry. In the presence of symmetry (which is not necessarily generic) and infinite frameworks, the question becomes more complicated.

I'll talk about some degree of freedom heuristics for symmetric frameworks, with a focus on the periodic case.

This talk is based on joint work with Justin Malestein.